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ABSTRACT

A project team from the Program Evaluation and Methodology Division of the U.S. General Accounting Office was asked to review recent research on education and summarize the findings for policymakers. This paper captures the team's reflections on the utility of education research for policymakers and others interested in improving schools. The search for information is described, and how the findings were presented is outlined. Factors that limit the usefulness of educational research are considered, and some suggestions are offered for overcoming obstacles to research use. Few of the recently published reports, articles, and books offered accessible guidance to policymakers. The research community could do much to improve the utility of their work for policymakers by packaging their findings for wider audiences and producing better summaries. To this end, they could enlist the aid of journalists to reach a larger audience. The access to information offered by the Internet should not be ignored. An appendix presents some examples of successful school practices. (Contains 3 figures.) (SLD)

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IMPROVING THE UTILITY OF EDUCATIONAL RESEARCH FOR POLICYMAKERS

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Paper presented at the annual meeting of the American Educational Research Association, New York, April 9, 1996

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Background

In the spring of 1995, we were asked to review recent research on education and to summarize findings for busy policymakers. We had six weeks to research and prepare a summary briefing and an annotated bibliography on what works in schools and another 6 weeks on what doesn't work in schools. (The other two members of our project team conducted a parallel inquiry concerning workplaces.) In the course of completing this task, we identified findings that could be very useful to policymakers, educators and citizens seeking to improve their schools. That was the good news, and we conveyed it in our briefings and in our written report.[1]

The bad news is that empirically based information about what works in schools is so well hidden. We found no publication designed to summarize current knowledge on a range of school issues for the general reader. (The Department of Education's What Works is now over 10 years old.) We did find useful studies and scholarly review articles, but we are professionals accustomed to reading technical material who read specialized newspapers and journals, can get instant assistance from a librarian skilled in computer searches and from colleagues in the Department of Education and have ready access to the Department's library (now called the National Library of Education). People who lacked these specialized resources, we concluded after reflecting on our experiences, would be unlikely to come across this information either through original sources or in extracts or syntheses.

A second piece of bad news is that there is so little solid information about what doesn't work. In the absence of such information, schools may continue to use and policymakers may even mandate practices that are unlikely to produce results.

This paper captures our reflections on the utility of education research for policymakers and others interested in improving schools. We begin with observations from our experience about what policymakers want to know and about education and their preferences for how information is packaged. Next, we summarize our search for information and how we presented our findings. We then discuss several factors that limit the utility of educational research to general audiences currently, in the hope of stimulating discussion as to how they can be overcome. We close with some suggestions.

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[1]U.S. General Accounting Office, Schools and Workplaces: An Overview of Successful and Unsuccessful Practices (GAO/PEMD-95-28), August 1996. Information on how to obtain copies is presented in the appendix.

Meeting policymakers' information needs

What policymakers want: focused answers to basic questions.

In our project, congressional policymakers concerned with school improvement asked some very basic questions: "What works?" and "What doesn't work?" in elementary and secondary schools. They wanted information that would help them focus efforts and dollars on practices that are likely to produce results and avoid supporting or mandating practices that are ineffective. We think state and local policymakers and citizens have similar needs.

Like others we have worked with, our policymakers preferred to get this information initially through a summary–oral or written in plain language–that focused on key findings relevant to their questions and could be absorbed in a short time (for example, in a 20-minute presentation or the first 2 pages of a written document). More detailed material that they could consult as follow-up to the initial summary was welcome. However, in the absence such a summary to guide them, policymakers find the typical detailed report difficult to digest.[2]

How these needs shaped our response

We conducted a whirlwind search of recent literature summaries and reports that examined connections between school practices and student outcomes using valid and reliable empirical data. Publications that met our selection criteria were summarized in an annotated bibliography, using the format shown in Figure 1, page 3. We drew from these what we judged to be the most significant and consistent findings and highlighted them in oral briefings: one on what works and one on what doesn't work.

We used the ten minutes of presentation time in each briefing to focus on a few key points, summarized in Figure 2, page 4 and presented in text form in the appendix to this paper.[3] (We combined the two briefings into one for purposes of written presentation, for reasons that will be discussed below.) Draft versions of the bibliography entries pertinent to each briefing were given to our audience at the time, to be drawn on for further information. A condensed version of the written presentation was included in our report, along with the bibliography entries themselves.

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[2] For observations on providing policymakers with information they can use, see U.S. General Accounting Office, Program Evaluation: Improving the Flow of Information to the Congress (GAO/PEMD-95-1), January, 1995..

[3]Each briefing also included ten minutes on practices in the workplace, and half an hour or so for questions and discussion.

Figure 1: Annotated bibliography format

Work Environment

Lee and Smith	Valerie E. Lee and Julia B. Smith. "Effects of High School Restructuring and Size on Gains in Achievement and Engagement for Early Secondary School Students." University of Wisconsin, Center for Organization and Restructuring of Schools, Madison, Wisconsin, April 1, 1994.
Practice	Traditional organization, moderate reform practices, and "restructuring" or organizational practices that foster continuity in teacher-student contacts, cooperative teaching or learning, and staff involvement in common planning and school problem solving.
Setting	Public and Catholic and other private high schools.
Source of Information	Eighth- and 10th-grade test scores and other school and student data from the National Education Longitudinal Study of 1988. Analysis covers nearly 12,000 students in 801 schools.
Findings and Conclusions	Small size, academic emphasis, and restructuring are associated with greater student engagement and gains in learning. The distribution of engagement and learning gains across students of different social backgrounds is more equitable in restructured than in either moderately reformed or traditionally organized high schools, which are larger and more internally stratified than the other types and enroll higher proportions of low-income and minority students. Schools get best results when they build a strong core of operation by adopting only a few restructuring reforms—along with such conventional reforms as emphasizing academic requirements, parent involvement, and staff stability. Small size makes both types of reform easier to implement.
Comments	The scores used to measure growth in student achievement were not highly reliable, and the survey data comprised relatively rough indicators of student engagement and school practice. The authors cite case study research as evidence that their findings are on target despite these limitations.

Figure 2: Topic headings for briefings

Criteria of Success	Student achievement at or above the expected level High teacher and student engagement in learning activities Effectiveness in overcoming disadvantage, such that students who are behind when they enter school are able to catch up
Foundations for Success	Mission focused on learning with high expectations for all Organizational strategies to support the mission

DIMENSION	PRACTICES ASSOCIATED WITH SUCCESS	PRACTICES NOT ASSOCIATED WITH SUCCESS[a]
Work Environment	Safety, orderliness Sense of community Leadership that fits the situation School-level problem solving	Large, fragmented secondary schools Structural changes unconnected to learning Inattention to instructional improvement Innovation overload
Human Resources	Control over entry and exit Supportive induction Engagement in professional development	Individual merit pay Conventional approaches to teacher evaluation Conventional staff development Conventional recruitment, screening, and assignment of teachers
Curriculum and Instruction	Academically rigorous, focused curriculum Effective and engaging instruction Chance for students to succeed	Retention in grade and social promotion Tracking students into low-level, remedial classes

Conclusions	Much that is successful isn't new No single practice guarantees success, and various combinations can work Success is a matter of fit between mission and practice

[a] Table entries for this column reflect practices whose effectiveness has at least been seriously questioned. Evidence that some of them don't work is fairly clear, and others are still the subject of scholarly debate.

Barriers and limitations in the literature we reviewed

Access

As we conducted our search, it struck us that the ordinary person–relying on his or her nearby bookstore and library and on publications of general circulation–would be unlikely to come across most of the items we included in our bibliography. As shown in Figure 3, all but a few of the items appeared through specialized sources: social science publishers, professional journals, think tanks, and government offices. We checked the shelves of several chain book stores offering mostly popular selections and found none of the items on our list. (These stores carried few books on any aspect of education, in notable contrast to their selections on business.) The more extensive collection on education in more 'serious' bookstore included two of our items, both published by university presses. The local libraries we checked in Washington, DC and Fairfax County did not offer books from specialized sources.

Even if original sources were difficult to unearth, policymakers and others interested in school improvement might gain access to their findings through other channels. For example, they might learn about successful and unsuccessful practices from articles that repackage findings from a particular study or synthesize the evidence from a body of work in educator-oriented journals or media of general circulation. We were disappointed to find relatively little evidence of such repackaging of the work included in our report. A synthesis that evaluates and summarize findings from a body of studies in plain language can be a very effective in communicating to policymakers on big-picture issues.

Readability

Characteristics of research reports that decrease their readability poses additional barriers to policymakers' access to knowledge. Organization of the study report is one such barrier. In the material we reviewed, major findings and conclusions were often buried within the text or were presented at the very end of a study. Abstracts and introductory sections often described what authors did rather than what they found. Even diligent readers could be easily discouraged from completing a report when its usefulness was not quickly apparent.

Technical terminology is also a barrier. Although it often simplifies communication among individuals engaged in similar research activities, it can block communication between researchers and policymakers. We noted that many studies, particularly articles in researcher journals, would not be comprehensible to readers who lacked training in research or statistics.

Figure 3: Type of publisher, name of publisher, and number of citations selected.

Type of Publisher	Name of Publisher	Number Selected
Social Science Publishers	Cambridge University Press (1) The Falmer Press (1) Harvard University Press (1) Jossey-Bass (1) Longman (1) The New Press (1) Sage Publications (1) State University of New York Press (1) Teachers College Press (3) Technomic Publishing Company (1) Yale University Press (2)	14
Professional Journals	American Education Research Journal (1) Early Childhood Research Quarterly (1) Education Leadership (2) Educational Evaluation and Policy Analysis (2) Journal of Educational Computing Research (1) Phi Delta Kappan (2) Review of Educational Research (2) The Urban Review (1)	12
Government Publications	Office of Technology Assessment (2) US Department of Education (4) US Government Printing Office (2)	8
General Publishers	HarperCollins (1) Basic Books (1) MacMillan Publishing Company (1)	3
Private Research Organizations	The Brookings Institution (1) The RAND Corporation (1) Center for the Organization and Restructuring of Schools (1)	3

Finally, we thought that policymakers would have difficulty interpreting many of the data tables in studies we reviewed. This was especially so for tables that were used to summarize large amounts of statistical information rather than to present significant outcomes. When writing for policymakers, it may be worth the additional page space (and the forbearance of the editor) to imbed simplified graphics within the body of a report and place highly technical material within an appendix.

The difficulty of saying what doesn't work

We were struck by how difficult it was to summarize what doesn't work in schools. This difficulty stemmed from three main factors. First, the question of what doesn't work is often addressed only indirectly, if at all. Most of the material we found was oriented toward finding and highlighting what does work or on factors that contribute to school success rather than those that impede it. Such studies may imply that if X works, then its absence or its opposite doesn't work. But such an implication may well not be warranted.

A number of the studies included in our bibliography contained information that shed light on what's ineffective, including case study descriptions of abominable practice in ineffective schools. However, the poor practices described–though newsworthy in the local community–are not news in research terms and tended not to be highlighted in study reports. Also, few authors were willing to come right out and say, baldly, "This doesn't work." Unless it is strongly stated, the message that something is ineffective doesn't come across.

The second factor is uncertainty about what we mean when we say that a practice doesn't work. There is, first of all, the question of what is "the practice." Many "practices" in education are defined either very broadly or in ideal terms and, in practice, take varied forms. Second, there is the term "doesn't work." Our experience uncovered a number of possible meanings for this term:

(1) The practiced has proven difficult or impossible to implement as intended.
(2) It has not succeeded in most of the places where it has been tried.
(3) Overall, it is associated with minimal or negative effects.
(4) It yields smaller positive effects than alternative practices.

We use the case of merit pay for individual teachers–the practice most uniformly regarded as unsuccessful in the research literature–to illustrate the problems generated by these different meanings. Merit pay has been difficult to implement and has fallen out of use after a few years in almost all the places where it has been tried. In view of its rocky history, many would conclude that merit pay "doesn't work." But those who favor merit pay on policy grounds (over the years, the push for merit pay has come largely from legislators) would say instead that it works in principle and simply hasn't had a fair trial, citing the few successful cases that can be found.

Third, evidence that an educational practice doesn't work is rarely unequivocal, and conclusions concerning a given practice may change as it is viewed in a new context or as new information comes to light. Tracking and retention in grade are examples from our list. There is ample evidence that these practices as traditionally applied can be detrimental to the achievement of students that are in academic difficulty. But recent studies suggest that they can have legitimate and beneficial educational uses as well.

Taken together, these factors make it difficult to discuss what doesn't work separately from what does. Hence, our decision to combine the two in our written presentation.

Technical weaknesses that limit utility

Many of the studies that we reviewed but did not select contained major limitations. Design constraints, contextual omissions, limited outcomes, and author biases were more pervasive than we had anticipated.

Single case studies were the basis for many reports. Few studies used longitudinal design or included adequate controls. We understand that all applied research designs have intrinsic limitations and that resource constraints may limit them further. However, greater efforts to strengthen research designs–perhaps through increased collaboration–could substantially increase the generalizability of much research.

Omissions of adequate descriptions of demographic characteristics and contextual conditions were troublesome. After reading a study about what works, we easily imagined a policy maker reading the same material, asking whether the treatment would work for them and how, and not finding answers to these questions.

Few studies reported findings in terms of student outcomes. Those studies that did often used limited outcome measures. For example, norm-referenced tests and SAT scores were used to measure classroom achievement.

Meta-analyses can effectively summarize findings across large numbers of studies. Unfortunately, many of the meta-analyses that we reviewed offered little guidance for improving practice. Descriptions of the original research and the criteria used to determine outcome selection were not provided, leaving the reader without a basic understanding of what the original treatments were, how original outcomes might have differed, how contextual variables might have influenced these outcomes, or whether the original research was sound.

Finally, we found many policy pieces, supported by shaky assumptions and selective data, presented as objective research. We would not be surprised to find this genre growing in amount and sophistication as the internet explodes the accessibility of data.

Conclusions and suggestions

We reviewed an extensive body of recently published reports, journal articles, and books about elementary and secondary school practices. Although almost all these works would have been useful to members of the research community, few offered accessible guidance to policymakers. The research community could do much to move policymakers from sound-bite to substance by synthesizing findings of quality research, repackaging them in plain language and communicating them through channels that reach the general public.

We hope that this paper will stimulate ideas as to how policy-relevant communication between the educational research community could be improved. Our suggestions are as follows.

First, researchers themselves could take on the task. Repackaging rich and complex findings into a few simply presented points is difficult for someone trained as an academic. Still, research teams can creatively repackage their findings to reach wide audiences. For example, researchers at the Center on Organization and Restructuring of Schools recently summarized the results of a five-year research program in a "report to the public and educators" that is being distributed by the American Federation of Teachers, the Association for Supervision and Curriculum Development, the National Association of Elementary School Principals, and the National Association of Secondary School Principals.[4]

Second, researchers can enlist the aid of journalists. The educational desks of many newspapers are staffed by knowledgeable, interested individuals who will report on research studies if studies are timely, likely to be influential, and well-packaged. Journalists skilled at handling research material can also be found at trade-papers like Education Daily and Education Week which reach general audiences especially attuned to education.

Finally, the internet offers a extraordinary powerful tool for making information accessible. We hope that individual scholars and the various institutions charged with getting information to the public will work together to make well-grounded, policy-relevant findings such as those we summarized easy for even the novice browser to find.

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[4]Fred M. Newmann and Gary G. Wehlage, Successful School Restructuring: A Report to the Public and Educators by the Center on Organization and Restructuring of Schools. Madison, WI: Center on Organization and Restructuring of Schools, 1995.

SUCCESSFUL SCHOOL PRACTICES

The criteria for school success that we drew from the literature were (1) student achievement at or above the expected level, (2) high teacher and student engagement in learning activities, and (3) effectiveness in overcoming disadvantage, such that students who are behind when they enter school are able to catch up. Schools that met all three criteria of success had a well-defined mission: they knew what they wanted to accomplish. Importantly, the mission was focused upon student learning and held high expectations for learning and behavior for all students, including those who needed extra assistance.

Characteristics of the Work Environment

Safety, Orderliness, and a Sense of Community

Successful schools provided a safe and orderly work environment, in which instruction is protected against disruptions. In the case study literature, such schools were characterized by a sense of community, which was important for teacher and student engagement. The "community" included all students, not just the more able. Members of the community shared a sense of mission, as well as educational goals and experiences. Staff had close, sustained contact with each other and with students, who felt that teachers cared about them. Teachers collaborated in decisions about instruction.

Practices that involved parents in their child's learning contributed to such an environment, as did adult or peer mentor programs that gave at-risk students a personal connection to school. Structural features such as small school size and scheduling and assignment practices that kept teachers with the same group of students for extended periods also made it easier to build a learning-centered environment. However, these were not necessarily successful practices by themselves.

Instructional Leadership That Fits the Situation

Leadership in framing a learning-oriented vision and focusing school efforts on improvement helped to create a productive work environment. We found that the source of leadership varied with the situation. Principal's leadership was typical of effective schools that serve low-income students--schools in which teachers tend to be relatively inexperienced. In other situations (including effective middle-class schools) experienced faculty took the lead on instruction and the principal played a managerial role. (Some teacher-designed alternative schools even did without a principal.) By contrast, case studies of ineffective schools found that no one took the lead on matters of instruction and learning; teachers and principal mistakenly believed that what they had traditionally done was good enough, and they did not seek to improve their practice.

School-Level Problem-Solving Authority

Finally, successful schools had the authority to solve problems at the local level, and involved members of the school community in this decisions. It is important that the problem solving activities focus on improving teaching and learning. Involvement of teachers, parents, and others in the school community is also important, but it can take a variety of forms. Studies of school site decision-making found that it was the fact and focus of involvement, rather than the specific means (such as a school council), that counted. Formal governance mechanisms like school councils have shown mixed results, in part because they treated governance as an end in itself rather than as a means to improving student learning. Many school-based management programs failed to provide participants with the skills and resources they need to use their powers effectively, did not focus on improving student outcomes, and did not hold councils accountable for achieving improvements.

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Human Resource Practices

Control Over Entry and Exit

Studies have found that successful schools often exercised control over the entry and exit of staff and students. This control, which has enabled the schools to build a stable staff and attract students who support its mission, has typically been associated with private schools and selective public schools (such as high schools of science). However, case studies have consistently demonstrated that principals and staffs in neighborhood public schools can influence entry and exit as well.

Additionally, school-based hiring authority sometimes allowed the selection of teachers with skills that match the needs of a particular site. Traditional centralized hiring and staffing practices have not worked well in this regard. Several studies concluded that district officials, particularly in large urban systems, were often unwilling or unable to spend time to evaluate candidates in terms of their potential for specific positions.

Control over teacher retention and attrition was as important as control over entry. According to several researchers, strategies that supported control in this area included allocating resources for multiple observations and evaluations by knowledgeable staff of new teachers, separating ineffective teachers from service, and providing separation initiatives such as cash bonuses to tenured, inadequately skilled staff.

Support for Professional Development

Since 1980, research evidence has demonstrated that professional development can enhance teacher performance and student learning. Effective approaches to staff development include

- providing support for activities initiated by teachers to meet individual learning goals;
- systematic observation and assessment of classroom teaching accompanied by feedback and discussion;
- participation in curriculum development of school improvement processes; and
- training that provides the presentation and demonstration of new skills, opportunities for simulated practice, and opportunities for coaching and practice in classroom situations.

In contrast, traditional staff development employs an expert to provide training on a centrally selected topic to large numbers of teachers over the course of a school day with little or no follow-up activities in the class. In the studies we reviewed, such training was generally considered unlikely to led to substantial improvement in practice. The studies found that practice has not necessarily improved when new approaches or technology were introduced without training.

In successful schools, new teachers profited from peer-coaching, mentoring, and collaborative activities with experienced staff. Placing new teachers in classrooms where they were most likely to do well, in contrast to the common practice of assigning new teachers to the most difficult classrooms, was obviously advantageous.

Various teacher compensation systems have been implemented to improve teaching. However, the studies that we reviewed agreed that no particular approach to compensation has been associated with success. Teachers value primarily the intrinsic rewards that result from reaching students and helping them to learn, and efforts to use pay to improve individual performance (particularly those that put teachers in competition with one another) have fared poorly. Approaches that linked compensation to skills and responsibilities appeared to have more promise.

Curriculum and Instruction

Academically Rigorous, Focused Curriculum

Schools that offered an academically rigorous curriculum appeared to be more successful than those that offered a less challenging curriculum. Rigorous curricula sustained students' interests, built upon their strengths, and signified high expectations for achievement.

A consistent theme that emerged from our review concerned the relationship between a focused curriculum and enhanced learning and engagement, particularly at the high school level. High school students were more likely to participate in learning that is focused around their occupational or academic plans. Integrating curricula in different subject areas through unified academic and occupational themes and the organization of academic instruction to support training for specific occupations enabled teachers to provide in-depth experience in areas of value to students. Without a focus and expanded instructional time, the broad scope of the curriculum in elementary and secondary schools has tended to encourage superficial coverage of curriculum topics and to discourage more meaningful instruction.

Effective and Engaging Instruction

Active instructional techniques, including hands-on experimentation, experiential learning, student initiated pursuits, and cooperative, group activities improved engagement with learning activities for students at every level. These strategies were often found to be more successful than passive techniques, such as workbook exercises and lectures. Activities that related to students' life experiences and that integrated vocational and academic instruction were particularly helpful for disadvantaged students.

Exposure for All

Most successful schools offered a rigorous curriculum and engaging instruction to high achieving students. Schools that succeeded at overcoming disadvantage provided these to all student, including those who needed extra assistance. In contrast, school that provided low achieving students with low-level or remedial curricula (instruction that emphasized the acquisition of basic skills such as word recognition, computation, and functional writing through rote and memory) failed to engagement them or to encourage them to develop higher-order skills (such as organization, abstraction, deduction, or problem solving).

Chance for All to Succeed

For some students, high achievement is a distant goal. Successful learning practices reward them for positive efforts and for continuing progress toward that goal. Strategies such as cooperative learning, teacher and peer tutoring, frequent reinforcement, and extended time for learning helped low achievers, particularly at early grade levels, overcome difficulties and participate in a vigorous milieu.

When these strategies were implemented appropriately and in a timely manner, students to progressed appropriately, and retention and social promotion decreased. Neither retention nor promotion, without the provision of specialized support, successfully closed academic deficits. Research findings indicate that retention, without extra support, was more harmful than social promotion because it substantially increased the probability of dropping out of school.

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